

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of

Request of RBC Signals LLC for 30-Day)
Special Temporary Authorization To) Call Sign: N/A
Operate an Earth Station in the 401-402) File No.: SES-STA-_____
MHz Frequency Band)

REQUEST FOR SPECIAL TEMPORARY AUTHORIZATION

RBC Signals LLC (“RBC Signals”), pursuant to Section 25.120 of the Commission’s rules, 47 C.F.R. § 25.120, respectfully seeks a 30-day special temporary authorization (“STA”) to operate two (2) existing M2 Antenna Systems Yagi antennas (the “400 MHz Yagi”) at a site in Windham, New York to communicate with the U.S.-licensed Astranis Demosat-2 cubesat. RBC Signals seeks this STA to evaluate tracking, telemetry and command (“TT&C”) link stability and functionality prior to regular earth station operations from the site. RBC Signals seeks to perform these short-term operations in the 401.6-401.75 MHz band (Earth-to-space/space-to-Earth), commencing on June 15, 2018, or as soon as practicable thereafter. As discussed below, grant of this STA request will allow RBC Signals to validate its earth station operations and ensure it can provide effective long-term TT&C support for low-Earth orbit (“LEO”) non-geostationary orbit satellite (“NGSO”) cubesat missions.

I. BACKGROUND

RBC Signals is a Seattle, Washington-based company that provides earth station services around the world. RBC Signals currently holds multiple STAs to provide similar TT&C functions for various LEO NGSO cubesats using the 400 MHz Yagi (Model 400CP30A),¹ including from the

¹ See, e.g., RBC Signals, LLC, File Nos. SES-STA-20180307-00202 & SES-STA-20180605-00993.

subject Windham, NY site.² In the *Windham STA*, RBC Signals has authority to communicate with the U.S.-licensed Radix cubesat, operated by Analytical Space Inc. (“Analytical Space”), in the 401-401.3 MHz band (Earth-to-space/space-to-Earth) utilizing the same 400 MHz Yagi.³ In anticipation of deployment of the Radix satellite, RBC Signals seeks to test and evaluate the 400 MHz Yagi (which is currently installed on-site) to ensure optimal performance upon commencement of TT&C. Accordingly, RBC Signals has agreed with an existing partner, Astranis Space Technologies Corporation (“Astranis”), to allow RBC Signals to operate the 400 MHz Yagi with the U.S.-licensed Astranis Demosat-2⁴ for testing purposes.

RBC Signals provides the attached draft FCC Form 312 Schedule B and radiation hazard analysis for additional information relating to its proposed ground station operations. To the extent applicable, RBC Signals incorporates by reference the satellite technical specifications and mission overview information previously provided in the *Astranis Experimental STA* application, and will perform the earth station operations consistent with the terms and conditions imposed by the Commission in the *Astranis Experimental STAs*.

II. DISCUSSION

RBC Signals will operate the same 400 MHz Yagi authorized in the *Windham STA* to communicate with Demosat-2 in the 401.6-401.75 MHz band (Earth-to-space/space-to-Earth). Grant of this STA request will help ensure the initial and ongoing reliability of the 400 MHz Yagi

² See, e.g., RBC Signals, LLC, File No. SES-STA-20180430-00416 (expires on July 1, 2018) (“*Windham STA*”).

³ See Analytical Space, Inc., File No. 0044-EX-ST-2017, Call Sign WL9XLY (“*Radix Experimental STA*”).

⁴ See Astranis Space Technologies Corp., File Nos. 0990-EX-ST-2018, 1624-EX-ST-2017 and 0113-EX-ST-2017, Call Sign WL9XAF, Updated Narrative and Attachments (filed on Aug. 8, 2017) (“*Astranis Experimental STA*”).

to support the Radix mission, and will allow for general assessment of earth station operability to potentially support additional cubesat missions.

RBC Signals' short-term TT&C operations, which will be conducted on an unprotected and non-interference basis, and only as-needed to communicate with the satellite as it passes over the Windham earth station (between one and six times per day for brief periods of approximately 10 minutes), are essentially identical to the operations previously described in the *Astranis Experimental STA* application.⁵

The proposed TT&C operations are consistent with the TT&C operations currently authorized by the Commission at Windham and will be conducted in compliance with the conditions in the *Windham STA*.⁶ RBC Signals will work with Commission staff to ensure that these temporary operations will not create any increase in potential interference to current or future government users. If RBC Signals learns that its operations are causing harmful interference to others, it will suspend or modify its operations to immediately resolve such interference.

A. TT&C Spectrum Use

The United States Table of Frequency Allocations ("Table of Allocations"), Section 2.106

⁵ *Supra* n. 4.

⁶ Please note that RBC Signals is working with NASA to adjust the condition addressing transmissions towards to ISS:

"Uplink operations from the M2 Antenna Systems Yagi antenna to the [*Radix*] CubeSat shall not occur when the NASA International Space Station (ISS) (NORAD designation 25544 or international spacecraft ID 1998-067A) is within the horizon to horizon view of the RBC signals facility in Windham, New York."

Because NASA's concerns relate to equipment used during extravehicular activities (EVAs), this adjustment will include prior notice to RBC Signals of scheduled EVAs so that transmission towards the ISS in bands of concern can be suppressed during these periods. In this case, the Demosat-2 will operate in a band with greater separation from NASA frequencies and in an orbit with greater separation from the ISS orbit (at an inclination angle of approximately 97.71°, well above the ISS inclination angle of 51.6°).

of the Commission's rules, 47 C.F.R. § 2.106, provides that the 401-402 MHz band is shared on a co-primary basis between meteorological aids and space operations services. RBC Signals has examined other operations in the subject band and confirms that the proposed earth station operations for limited TT&C link testing will not cause interference to current or near-term future U.S. government users of the band. RBC Signals will perform operations in the 401.6-401.75 MHz band pursuant to the co-primary space operations allocation in this band.⁷

RBC Signals understands that there are certain U.S. government meteorological aids and earth exploration operations conducted in the 401-402 MHz band.⁸ RBC Signals will operate on an unprotected, non-interference basis to Federal users and, if it learns that its operations are causing harmful interference to other Federal operations, it will suspend or modify its operations to resolve such interference. Moreover, RBC Signals has not identified any non-federal, co-frequency operations within a 40 km radius of the Windham, New York site and believes its TT&C operations in this band will not present a potential for interference into other authorized commercial spectrum users.

B. STA Request and Public Interest Considerations

RBC Signals respectfully requests this 30-day STA pursuant to Section 25.120 of the Commission's rules, 47 C.F.R. § 25.120. Section 25.120(a) provides that STA requests should be filed at least three working days prior to the date of commencement of the proposed operations. Here, RBC Signals seeks a commencement date of June 15, 2018. Additionally, the Commission may grant a 30-day STA if the STA request has not been placed on public notice and the applicant

⁷ See 47 C.F.R. § 2.1 (defining "space operations" as "a radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry, and space telecommand.").

⁸ See https://www.ntia.doc.gov/files/ntia/publications/compendium/0401.00-0402.00_01MAR14.pdf.

does not plan to file a request for regular authority for the operations. As noted, RBC Signals does not anticipate long-term operations from the Windham site to support the Demosat-2 cubesat and anticipates this short-term authority will be sufficient to achieve its goal of optimizing the earth station TT&C functionality.

RBC Signals is filing this 30-day STA request to optimize earth station functionality prior to the deployment of the Radix cubesat. Thus, this STA request is in the public interest because it will allow RBC Signals to validate the link stability and operability of the 400 MHz Yagi, helping to ensure it is able to provide effective and safe TT&C support upon the deployment of the Radix. Finally, RBC Signals agrees to abide by additional post-grant restrictions or conditions that the Commission imposes, to the extent any unanticipated issues arise.

III. CONCLUSION

In view of the foregoing, the public interest would be served by grant of a 30-day STA to allow RBC Signals to operate the 400 MHz Yagi with the Demosat-2 cubesat to validate earth station functionality, commencing on June 15, 2018, from a site in Windham, New York.